In the Claims:

WHAT IS CLAIMED:

1. (Currently Amended) A method of decreasing an involuntary cull in farm animals comprising: ~~delivering into a tissue of the farm animals~~ introducing into muscle cells of the farm animal an effective amount of an isolated nucleic acid expression construct that encodes a growth-hormone-releasing-hormone ("GHRH") or functional biological equivalent thereof; wherein the nucleic acid expression construct comprises a synthetic muscle specific promoter; a nucleotide sequence capable of expressing the GHRH or functional biological equivalent under conditions that promote expression of the nucleotide sequence; and a 3' untranslated region, wherein the involuntary cull comprises infection, disease, morbidity, or mortality of the farm animals; and wherein the farm animals comprises ruminant animals, food animals, or work animals.

2. (Currently Amended) The method of claim 1, wherein the involuntary cull from mortality is decreased from about 20% in farm animals not having the isolated nucleic acid expression construct delivered into ~~a tissue~~ muscle cells to less than 15% in farm animals having the isolated nucleic acid expression construct delivered.

3. (Original) The method of claim 1, wherein the involuntary cull comprises mortality at birth of newborns of the farm animals.

4. (Original) The method of claim 1, wherein the involuntary cull comprises post-natal mortality of newborns of the farm animals.

5. (Currently Amended) The method of claim 1, wherein delivering into the ~~a tissue~~ muscle cells of the farm animals the isolated nucleic acid expression construct is via ~~electroporation method~~, a viral vector, in conjunction with a carrier, by parenteral route, or a combination thereof.

6. (Currently Amended) The method of claim 1, ~~claim 5, wherein the electroporation method comprising:~~ wherein introducing into muscle cells of the farm animal the effective amount of the isolated nucleic acid expression construct that encodes the growth-hormone-releasing-hormone ("GHRH") or functional biological equivalent thereof further comprising:

(a) penetrating ~~the~~ a tissue in the farm animals with a plurality of needle electrodes, wherein the plurality of needle electrodes are arranged in a spaced relationship;

(b) introducing the isolated nucleic acid expression construct into the tissue between the plurality of needle electrodes; and

(c) applying an electrical pulse to the plurality of needle electrodes.

7. (Original) The method of claim 1, wherein the isolated nucleic acid expression construct is delivered in a single dose.

8. (Original) The method of claim 7, wherein the single dose comprises about a 2mg quantity of nucleic acid expression construct.

9. (Currently Amended) The method of claim 1, wherein the ~~tissue~~ muscle cells of the farm animals comprise diploid cells.

10. (Canceled) ~~The method of claim 1, wherein the tissue of the farm animals comprise muscle cells.~~

11. (Original) The method of claim 1, wherein the isolated nucleic acid expression construct comprises a HV-GHRH plasmid (SEQID#11).

12. (Original) The method of claim 1, wherein the isolated nucleic acid expression construct comprises an optimized pAV0204 bGHRH plasmid (SEQID#19).

13. (Original) The method of claim 1, wherein the isolated nucleic acid expression construct is a TI-GHRH plasmid (SEQID#12), TV-GHRH Plasmid (SEQID#13), 15/27/28 GHRH plasmid (SEQID#14), or pSP-wt-GHRH plasmid.

14. (Original) The method of claim 1, wherein the isolated nucleic acid expression construct is an optimized pAV0202 mGHRH plasmid (SEQID#17), pAV0203 rGHRH plasmid (SEQID#18), pAV0205 oGHRH plasmid (SEQID#20), pAV0206 cGHRH plasmid (SEQID#21), or pAV0207 pGHRH plasmid (SEQID#28).

15. (Original) The method of claim 1, wherein the isolated nucleic acid expression construct further comprises, a transfection-facilitating polypeptide.

16. (Original) The method of claim 15, wherein the transfection-facilitating polypeptide comprises a charged polypeptide.

17. (Original) The method of claim 15, wherein the transfection-facilitating polypeptide comprises poly-L-glutamate.

18. (Original) The method of claim 1, wherein the delivering into the cells of the farm animals the isolated nucleic acid expression construct initiates expression of the encoded GHRH or functional biological equivalent thereof.

19. (Original) The method of claim 1, wherein the encoded GHRH is a biologically active polypeptide; and the encoded functional biological equivalent of GHRH is a polypeptide that has been engineered to contain a distinct amino acid sequence while simultaneously having similar or improved biologically activity when compared to the GHRH polypeptide.

20. (Original) The method of claim 1, wherein the encoded GHRH or functional biological equivalent thereof is of formula (SEQID No: 6):

$-X_1-X_2$–DAIFTNSYRKVL-X_3–QLSARKLLQDI-X_4-X_5–RQQGERNQEQGA-OH

wherein the formula has the following characteristics:

X_1 is a D-or L-isomer of the amino acid tyrosine ("Y"), or histidine ("H");

X_2 is a D-or L-isomer of the amino acid alanine ("A"), valine ("V"), or isoleucine ("I");

X_3 is a D-or L-isomer of the amino acid alanine ("A") or glycine ("G");

X_4 is a D-or L-isomer of the amino acid methionine ("M"), or leucine ("L");

X_5 is a D-or L-isomer of the amino acid serine ("S") or asparagine ("N");

or a combination thereof.

21. (Canceled) ~~The method of claim 1, wherein the farm animals comprises ruminant animals, food animals, or work animals.~~

22. (Original) The method of claim 1, wherein the farm animals comprise dairy cows.

23. (Currently Amended) A method of improving a body condition score ("BCS") in farm animals comprising: ~~delivering into a tissue of the farm animals~~ introducing into muscle cells of the farm animal an effective amount of an isolated nucleic acid expression construct that encodes a growth-hormone-releasing-hormone ("GHRH") or functional biological equivalent thereof; wherein the nucleic acid expression construct comprises a synthetic muscle specific promoter; a nucleotide sequence capable of expressing the GHRH or functional biological equivalent under conditions that promote expression of the nucleotide sequence; and a 3' untranslated region, wherein the BSC is an aid used to evaluate an overall nutritional state of the farm animals; and wherein the farm animals comprises ruminant animals, food animals, or work animals.

24. (Currently Amended) The method of claim 23, wherein delivering into the ~~tissue~~ muscle cells of the farm animals the isolated nucleic acid expression construct is via ~~electroporation method~~, a viral vector, in conjunction with a carrier, by parenteral route, or a combination thereof.

25. (Currently Amended) The method of claim 23, ~~wherein the electroporation method comprising~~ wherein introducing into muscle cells of the farm animal the effective amount of the isolated nucleic acid expression construct that encodes the growth-hormone-releasing-hormone ("GHRH") or functional biological equivalent thereof further comprising:

(a) penetrating ~~the~~ a tissue in the farm animals with a plurality of needle electrodes, wherein the plurality of needle electrodes are arranged in a spaced relationship;

(b) introducing the isolated nucleic acid expression construct into the tissue between the plurality of needle electrodes; and

(c) applying an electrical pulse to the plurality of needle electrodes.

26. (Original) The method of claim 23, wherein the isolated nucleic acid expression construct is delivered in a single dose.

27. (Original) The method of claim 26, wherein the single dose comprises about a 2mg quantity of nucleic acid expression construct.

28. (Currently Amended) The method of claim 26, wherein the ~~tissues~~ muscle cells of the farm animals comprise diploid cells.

29. (Canceled) ~~The method of claim 26, wherein the tissues of the farm animals comprise muscle cells.~~

30. (Original) The method of claim 26, wherein the isolated nucleic acid expression construct comprises a HV-GHRH plasmid (SEQID#11).

31. (Original) The method of claim 26, wherein the isolated nucleic acid expression construct comprises an optimized pAV0204 bGHRH plasmid (SEQID#19).

32. (Original) The method of claim 26, wherein the isolated nucleic acid expression construct is a TI-GHRH plasmid (SEQID#12), TV-GHRH Plasmid (SEQID#13), 15/27/28 GHRH plasmid (SEQID#14), or pSP-wt-GHRH plasmid.

33. (Original) The method of claim 26, wherein the isolated nucleic acid expression construct is an optimized pAV0202 mGHRH plasmid (SEQID#17), pAV0203 rGHRH plasmid (SEQID#18), pAV0205 oGHRH plasmid (SEQID#20), pAV0206 cGHRH plasmid (SEQID#21), or pAV0207 pGHRH plasmid (SEQID#28).

34. (Original) The method of claim 26, wherein the isolated nucleic acid expression construct further comprises, a transfection-facilitating polypeptide.

35. (Original) The method of claim 34, wherein the transfection-facilitating polypeptide comprises a charged polypeptide.

36. (Original) The method of claim 34, wherein the transfection-facilitating polypeptide comprises poly-L-glutamate.

37. (Original) The method of claim 26, wherein the delivering into the cells of the farm animals the isolated nucleic acid expression construct initiates expression of the encoded GHRH or functional biological equivalent thereof.

38. (Original) The method of claim 26, wherein the encoded GHRH is a biologically active polypeptide; and the encoded functional biological equivalent of GHRH is a polypeptide that has been engineered to contain a distinct amino acid sequence while simultaneously having similar or improved biologically activity when compared to the GHRH polypeptide.

39. (Original) The method of claim 26, wherein the encoded GHRH or functional biological equivalent thereof is of formula (SEQID No: 6):

-X_1-X_2–DAIFTNSYRKVL-X_3–QLSARKLLQDI-X_4-X_5–RQQGERNQEQGA-OH

wherein the formula has the following characteristics:

X_1 is a D-or L-isomer of the amino acid tyrosine ("Y"), or histidine ("H");

X_2 is a D-or L-isomer of the amino acid alanine ("A"), valine ("V"), or isoleucine ("I");

X_3 is a D-or L-isomer of the amino acid alanine ("A") or glycine ("G");

X_4 is a D-or L-isomer of the amino acid methionine ("M"), or leucine ("L");

X_5 is a D-or L-isomer of the amino acid serine ("S") or asparagine ("N");

or a combination thereof.

40. (Original) The method of claim 26, wherein the farm animals comprises a ruminant animals, a food animals, or a work animals.

41. (Original) The method of claim 26, wherein the farm animals comprises a pig, sheep, goat or chicken.

42. (Original) The method of claim 26, wherein the farm animals comprise bovine.

43. (Currently Amended) The method of claim 42 ~~claim 26~~, wherein the farm animals comprise dairy cows.

44. (Currently Amended) A method of increasing milk production in a dairy cow comprising: ~~delivering into muscle tissues of the dairy cow~~ introducing into muscle cells of the dairy cow an effective amount of an isolated nucleic acid expression construct that encodes a growth-hormone-releasing-hormone ("GHRH") or functional biological equivalent thereof; wherein the nucleic acid expression construct comprises a synthetic muscle specific promoter; a nucleotide sequence capable of expressing the GHRH or functional biological equivalent under conditions that promote expression of the nucleotide sequence; and a 3' untranslated region; wherein delivering into the ~~tissue~~ muscle cells of the farm animals the isolated nucleic acid expression construct is via electroporation~~, a viral vector,~~ in conjunction with a carrier, ~~by parenteral route, or a combination thereof;~~ and wherein the isolated nucleic acid expression construct is delivered in a single dose.

45. (Original) The method of claim 44, wherein the increase in milk production is increased from about 8% to about 18% in farm animals having the isolated nucleic acid expression construct delivered when compared to animals not having the isolated nucleic acid expression construct delivered.

46. (Currently Amended) The method of claim 44, ~~wherein the electroporation method comprising~~ wherein introducing into muscle cells of the dairy cow the effective amount of the isolated nucleic acid expression construct that encodes the growth-hormone-releasing-hormone ("GHRH") or functional biological equivalent thereof further comprising:

(a) penetrating ~~the~~ a tissue in dairy cow with a plurality of needle electrodes, wherein the plurality of needle electrodes are arranged in a spaced relationship;

(b) introducing the isolated nucleic acid expression construct into the tissue between the plurality of needle electrodes; and

(c) applying an electrical pulse to the plurality of needle electrodes.

47. (Original) The method of claim 44, wherein the single dose comprises about a 2mg quantity of nucleic acid expression construct.

48. (Original) The method of claim 44, wherein the isolated nucleic acid expression construct comprises a HV-GHRH plasmid (SEQID#11).

49. (Original) The method of claim 44, wherein the isolated nucleic acid expression construct comprises an optimized pAV0204 bGHRH plasmid (SEQID#19).

50. (Original) The method of claim 44, wherein the isolated nucleic acid expression construct is a TI-GHRH plasmid (SEQID#12), TV-GHRH Plasmid (SEQID#13), 15/27/28 GHRH plasmid (SEQID#14), or pSP-wt-GHRH plasmid.

51. (Original) The method of claim 44, wherein the isolated nucleic acid expression construct is an optimized pAV0202 mGHRH plasmid (SEQID#17), pAV0203 rGHRH plasmid (SEQID#18), pAV0205 oGHRH plasmid (SEQID#20), pAV0206 cGHRH plasmid (SEQID#21), or pAV0207 pGHRH plasmid (SEQID#28).

52. (Original) The method of claim 44, wherein the isolated nucleic acid expression construct further comprises, a transfection-facilitating polypeptide.

53. (Original) The method of claim 52, wherein the transfection-facilitating polypeptide comprises a charged polypeptide.

54. (Original) The method of claim 52, wherein the transfection-facilitating polypeptide comprises poly-L-glutamate.

55. (Original) The method of claim 44, wherein the delivering into the cells of the farm animals the isolated nucleic acid expression construct initiates expression of the encoded GHRH or functional biological equivalent thereof.

56. (Original) The method of claim 44, wherein the encoded GHRH is a biologically active polypeptide; and the encoded functional biological equivalent of GHRH is a polypeptide that has been engineered to contain a distinct amino acid sequence while simultaneously having similar or improved biologically activity when compared to the GHRH polypeptide.

57. (Original) The method of claim 44, wherein the encoded GHRH or functional biological equivalent thereof is of formula (SEQID No: 6):

-X_1-X_2–DAIFTNSYRKVL-X_3–QLSARKLLQDI-X_4-X_5–RQQGERNQEQGA-OH

wherein the formula has the following characteristics:

X_1 is a D-or L-isomer of the amino acid tyrosine ("Y"), or histidine ("H");

X_2 is a D-or L-isomer of the amino acid alanine ("A"), valine ("V"), or isoleucine ("I");

X_3 is a D-or L-isomer of the amino acid alanine ("A") or glycine ("G");

X_4 is a D-or L-isomer of the amino acid methionine ("M"), or leucine ("L");

X_5 is a D-or L-isomer of the amino acid serine ("S") or asparagine ("N");

or a combination thereof.

58. (Original) A method of decreasing an involuntary cull in farm animals comprising: delivering into a muscle tissue of the farm animals an isolated nucleic acid expression construct that encodes a growth-hormone-releasing-hormone ("GHRH") or functional biological equivalent thereof; wherein;

the involuntary cull comprises infection, disease, morbidity, or mortality of the farm animals;

delivering is via an *in vivo* electroporation method;

the isolated nucleic acid expression construct is delivered in a single dose; and

the encoded GHRH or functional biological equivalent thereof is of formula (SEQID No: 6):

$-X_1-X_2$–DAIFTNSYRKVL-X_3–QLSARKLLQDI-X_4-X_5–RQQGERNQEQGA-OH

wherein the formula has the following characteristics:

X_1 is a D-or L-isomer of the amino acid tyrosine ("Y"), or histidine ("H");

X_2 is a D-or L-isomer of the amino acid alanine ("A"), valine ("V"), or isoleucine ("I");

X_3 is a D-or L-isomer of the amino acid alanine ("A") or glycine ("G");

X_4 is a D-or L-isomer of the amino acid methionine ("M"), or leucine ("L");

X_5 is a D-or L-isomer of the amino acid serine ("S") or asparagine ("N");

or a combination thereof.

59. (Original) The method of claim 58, wherein the involuntary cull comprises mortality at birth of newborns of the farm animals.

60. (Original) The method of claim 58, wherein the involuntary cull further comprises post-natal mortality of newborns of the farm animals.

61. (Original) The method of claim 58, wherein the single dose comprises about a 2mg quantity of nucleic acid expression construct.

62. (Original) The method of claim 58, wherein the isolated nucleic acid expression construct is a HV-GHRH plasmid (SEQID#11), or an optimized pAV0204 bGHRH plasmid (SEQID#19).

63. (Original) The method of claim 58, wherein the isolated nucleic acid expression construct is a TI-GHRH plasmid (SEQID#12), TV-GHRH Plasmid (SEQID#13), 15/27/28 GHRH plasmid (SEQID#14), pSP-wt-GHRH plasmid, pAV0202 mGHRH plasmid (SEQID#17), pAV0203 rGHRH plasmid (SEQID#18), pAV0205 oGHRH plasmid (SEQID#20), pAV0206 cGHRH plasmid (SEQID#21), or pAV0207 pGHRH plasmid (SEQID#28).

64. (Original) The method of claim 58, wherein the isolated nucleic acid expression construct further comprises, poly-L-glutamate.

65. (Original) The method of claim 58, wherein the farm animals comprises a bovine.

66. (Original) A method of improving a body condition score ("BCS") in farm animals comprising: delivering into a muscle tissue of the farm animals an isolated nucleic acid expression construct that encodes a growth-hormone-releasing-hormone ("GHRH") or functional biological equivalent thereof;

wherein:

the BSC is an aid used to evaluate an overall nutritional state of the farm animals;

delivering is via an *in vivo* electroporation method;

the isolated nucleic acid expression construct is delivered in a single dose; and

the encoded GHRH or functional biological equivalent thereof is of formula (SEQID No: 6):

$-X_1-X_2$–DAIFTNSYRKVL-X_3–QLSARKLLQDI-X_4-X_5–RQQGERNQEQGA-OH

wherein the formula has the following characteristics:

X_1 is a D-or L-isomer of the amino acid tyrosine ("Y"), or histidine ("H");

X_2 is a D-or L-isomer of the amino acid alanine ("A"), valine ("V"), or isoleucine ("I");

X_3 is a D-or L-isomer of the amino acid alanine ("A") or glycine ("G");

X_4 is a D-or L-isomer of the amino acid methionine ("M"), or leucine ("L");

X_5 is a D-or L-isomer of the amino acid serine ("S") or asparagine ("N");

or a combination thereof.

67. (Original) The method of claim 66, wherein the single dose comprises about a 2mg quantity of nucleic acid expression construct.

68. (Original) The method of claim 66, wherein the isolated nucleic acid expression construct is a HV-GHRH plasmid (SEQID#11), or an optimized pAV0204 bGHRH plasmid (SEQID#19).

69. (Original) The method of claim 66, wherein the isolated nucleic acid expression construct is a TI-GHRH plasmid (SEQID#12), TV-GHRH Plasmid (SEQID#13), 15/27/28 GHRH plasmid (SEQID#14), pSP-wt-GHRH plasmid, pAV0202 mGHRH plasmid (SEQID#17), pAV0203 rGHRH plasmid (SEQID#18), pAV0205 oGHRH plasmid (SEQID#20), pAV0206 cGHRH plasmid (SEQID#21), or pAV0207 pGHRH plasmid (SEQID#28).

70. (Original) The method of claim 66, wherein the isolated nucleic acid expression construct further comprises, poly-L-glutamate.

71. (Original) The method of claim 66, wherein the farm animals comprise bovine.

72. (Original) A method of increasing milk production in a dairy cow comprising: delivering into tissues of the dairy cow an isolated nucleic acid expression construct that encodes a growth-hormone-releasing-hormone ("GHRH") or functional biological equivalent thereof;

wherein:

delivering is via an *in vivo* electroporation method;

the isolated nucleic acid expression construct is delivered in a single dose; and

the encoded GHRH or functional biological equivalent thereof is of formula (SEQID No: 6):

-X_1-X_2–DAIFTNSYRKVL-X_3–QLSARKLLQDI-X_4-X_5–RQQGERNQEQGA-OH

wherein the formula has the following characteristics:

X_1 is a D-or L-isomer of the amino acid tyrosine ("Y"), or histidine ("H");

X_2 is a D-or L-isomer of the amino acid alanine ("A"), valine ("V"), or isoleucine ("I");

X_3 is a D-or L-isomer of the amino acid alanine ("A") or glycine ("G");

X_4 is a D-or L-isomer of the amino acid methionine ("M"), or leucine ("L");

X_5 is a D-or L-isomer of the amino acid serine ("S") or asparagine ("N");

or a combination thereof.

73. (Original) The method of claim 72, wherein the single dose comprises about a 2mg quantity of nucleic acid expression construct.

74. (Original) The method of claim 72, wherein the isolated nucleic acid expression construct is a HV-GHRH plasmid (SEQID#11), or an optimized pAV0204 bGHRH plasmid (SEQID#19).

75. (Original) The method of claim 72, wherein the isolated nucleic acid expression construct is a TI-GHRH plasmid (SEQID#12), TV-GHRH Plasmid (SEQID#13), 15/27/28 GHRH plasmid (SEQID#14), pSP-wt-GHRH plasmid, pAV0202 mGHRH plasmid (SEQID#17), pAV0203 rGHRH plasmid (SEQID#18), pAV0205 oGHRH plasmid (SEQID#20), pAV0206 cGHRH plasmid (SEQID#21), or pAV0207 pGHRH plasmid (SEQID#28).

76. (Original) The method of claim 72, wherein the isolated nucleic acid expression construct further comprises, poly-L-glutamate.

77. (Currently Amended) A method of decreasing an involuntary cull in a farm animal comprising: delivering into the farm animal ~~animals~~ an isolated ~~a~~ growth hormone secretagogue molecule; wherein the involuntary cull comprises infection, disease, morbidity, or mortality of the farm animal ~~animals~~; wherein the isolated growth hormone secretagogue molecule facilitates growth hormone ("GH") secretion in the farm animal; the farm animal comprises a ruminant animal, a food animal, or a work animal; and wherein the growth hormone secretagogue comprises an isolated biologically active polypeptide generated from a recombinant nucleic acid expression construct that encodes a growth hormone releasing hormone ("GHRH") or functional biological equivalent thereof.

78. (Canceled) ~~The method of claim 77, wherein delivering into the tissue of the farm animals the growth hormone secretagogue molecule is via an electroporation method, a viral vector or nucleic acid expression construct, in conjunction with a carrier, by parenteral route, orally, or a combination thereof.~~

79. (Original) The method of claim 77, wherein the involuntary cull comprises mortality at birth of newborns of the farm animals.

80. (Original) The method of claim 77, wherein the involuntary cull comprises post-natal mortality of newborns of the farm animals.

81. (Canceled) ~~The method of claim 77, wherein the growth hormone secretagogue molecule comprises a growth hormone releasing hormone ("GHRH") or functional biological equivalent thereof.~~

82. (Canceled) ~~The method of claim 77, wherein growth hormone secretagogue comprises an isolated nucleic acid expression construct that encodes the growth hormone releasing hormone ("GHRH") or functional biological equivalent thereof.~~

83. (Canceled) ~~The method of claim 81, wherein the isolated nucleic acid expression construct comprises a HV-GHRH plasmid (SEQID#11).~~

84. (Canceled) ~~The method of claim 81, wherein the isolated nucleic acid expression construct is an optimized pAV0204 bGHRH plasmid (SEQID#19), TI-GHRH plasmid (SEQID#12), TV-GHRH Plasmid (SEQID#13), 15/27/28 GHRH plasmid (SEQID#14), pSP-wt-GHRH plasmid, an optimized pAV0202 mGHRH plasmid (SEQID#17), pAV0203 rGHRH plasmid (SEQID#18), pAV0205 oGHRH plasmid (SEQID#20), pAV0206 cGHRH plasmid (SEQID#21), or pAV0207 pGHRH plasmid (SEQID#28).~~

85. (Canceled) ~~The method of claim 81, wherein the encoded GHRH is a biologically active polypeptide; and the encoded functional biological equivalent of GHRH is a polypeptide that has been engineered to contain a distinct amino acid sequence while simultaneously having similar or improved biologically activity when compared to the GHRH polypeptide.~~

86. (Currently Amended) The method of claim 81, wherein isolated biologically active polypeptide generated from the recombinant nucleic acid expression construct that encodes the ~~encoded~~ GHRH or functional biological equivalent thereof is of formula (SEQID No: 6):

$-X_1-X_2$–DAIFTNSYRKVL-X_3–QLSARKLLQDI-X_4-X_5–RQQGERNQEQGA-OH

wherein the formula has the following characteristics:

X_1 is a D-or L-isomer of the amino acid tyrosine ("Y"), or histidine ("H");

X_2 is a D-or L-isomer of the amino acid alanine ("A"), valine ("V"), or isoleucine ("I");

X_3 is a D-or L-isomer of the amino acid alanine ("A") or glycine ("G");

X_4 is a D-or L-isomer of the amino acid methionine ("M"), or leucine ("L");

X_5 is a D-or L-isomer of the amino acid serine ("S") or asparagine ("N");

or a combination thereof.

87. (Canceled) ~~The method of claim 77, wherein the farm animals comprises ruminant animals, food animals, or work animals~~.

88. (Original) The method of claim 77, wherein the farm animals comprise dairy cows.

89. (Currently Amended) A method of improving a body condition score ("BCS") in farm animals comprising: delivering into the farm animal ~~animals~~ an isolated ~~a~~ growth hormone secretagogue molecule; wherein the BSC is an aid used to evaluate an overall nutritional state of the farm animal ~~animals~~; wherein the isolated growth hormone secretagogue molecule ~~or functional biological equivalent thereof~~ facilitates growth hormone ("GH") secretion in the farm animal; the farm animal comprises a ruminant animal, a food animal, or a work animal; and wherein the growth hormone secretagogue comprises an isolated biologically active polypeptide generated from a recombinant nucleic acid expression construct that encodes a growth hormone releasing hormone ("GHRH") or functional biological equivalent thereof.

90. (Canceled) ~~The method of claim 89, wherein delivering into the tissue of the farm animals the isolated nucleic acid expression construct is via electroporation method, a viral vector, in conjunction with a carrier, by parenteral route, orally, or a combination thereof.~~

91. (Canceled) ~~The method of claim 89, wherein the growth hormone secretagogue molecule comprises a growth hormone releasing hormone ("GHRH") or functional biological equivalent thereof.~~

92. (Canceled) ~~The method of claim 89, wherein growth hormone secretagogue comprises an isolated nucleic acid expression construct that encodes the growth hormone releasing hormone ("GHRH") or functional biological equivalent thereof.~~

93. (Canceled) ~~The method of claim 89, wherein growth hormone secretagogue comprises an isolated nucleic acid expression construct that encodes the growth hormone releasing hormone ("GHRH") or functional biological equivalent thereof.~~

94. (Canceled) ~~The method of claim 93, wherein the isolated nucleic acid expression construct comprises a HV-GHRH plasmid (SEQID#11).~~

95. (Canceled) ~~The method of claim 93, wherein the isolated nucleic acid expression construct is an optimized pAV0204 bGHRH plasmid (SEQID#19), TI GHRH plasmid (SEQID#12), TV GHRH Plasmid (SEQID#13), 15/27/28 GHRH plasmid (SEQID#14), pSP wt GHRH plasmid, an optimized pAV0202 mGHRH plasmid (SEQID#17), pAV0203 rGHRH plasmid (SEQID#18), pAV0205 oGHRH plasmid (SEQID#20), pAV0206 cGHRH plasmid (SEQID#21), or pAV0207 pGHRH plasmid (SEQID#28).~~

96. (Canceled) ~~The method of claim 93, wherein the encoded GHRH is a biologically active polypeptide; and the encoded functional biological equivalent of GHRH is a polypeptide that has been engineered to contain a distinct amino acid sequence while simultaneously having similar or improved biologically activity when compared to the GHRH polypeptide.~~

97. (Currently Amended) The method of claim 93, wherein the isolated biologically active polypeptide generated from the recombinant nucleic acid expression construct that encodes the ~~encoded~~ GHRH or functional biological equivalent thereof is of formula (SEQID No: 6):

$-X_1-X_2$–DAIFTNSYRKVL-X_3–QLSARKLLQDI-X_4-X_5–RQQGERNQEQGA-OH

wherein the formula has the following characteristics:

X_1 is a D-or L-isomer of the amino acid tyrosine ("Y"), or histidine ("H");

X_2 is a D-or L-isomer of the amino acid alanine ("A"), valine ("V"), or isoleucine ("I");

X_3 is a D-or L-isomer of the amino acid alanine ("A") or glycine ("G");

X_4 is a D-or L-isomer of the amino acid methionine ("M"), or leucine ("L");

X_5 is a D-or L-isomer of the amino acid serine ("S") or asparagine ("N");

or a combination thereof.

98. (Canceled) ~~The method of claim 89, wherein the farm animals comprises ruminant animals, food animals, or work animals.~~

99. (Currently Amended) The method of claim 89, wherein the farm animal ~~animals~~ comprise a dairy cow ~~cows~~.